

Background

Globally, the impact of climate change has become increasingly visible in recent years. This year has seen arctic ice melting at record speeds, 2.4 million acres of wildfire in Alaska, 7 million acres of wildfire in Siberia and the hottest summer on record globally.

The UK is also experiencing the effects of climate change and environmental change. 2019 has seen record temperatures recorded across the country.¹ The 2018 heatwaves resulted in 863 excess deaths in England alone.² Flooding and coastal erosion increasingly threaten

communities, harming health and displacing communities.³

The Intergovernmental Panel on Climate Change (IPCC)'s Special Report on 1.5°C highlighted the need for an urgently accelerated and coordinated global response. Interventions to tackle climate change can also improve health outcomes, meaning that the health of a child born today could be dramatically improved over their lifetime by policies which ensure clean energy, reduce air pollution, increase active travel, tackle cold homes and promote healthier and more sustainable diets.

Current UK Context

The UK Government has recognised the urgency of the need to respond to climate change by declaring a Climate Emergency in May 2019 and amending the Climate Change Act (2008) to embed a 2050 net-zero carbon target.⁴ This world-leading climate policy commitment has been supported by corresponding decisions of the Welsh Assembly and the Scottish Parliament.^{5,6} In seeking to achieve a carbon neutral economy, the UK has positioned itself as a global leader in the response to climate change and created opportunities for substantial health and economic benefits from this transformation. However, further work is required to ensure that the UK delivers on these commitments, particularly in view of the Committee on Climate Change's warnings – relating to the pre-existing, less ambitious, emissions targets- that “UK action to curb greenhouse gas emissions is lagging behind what is needed to meet legally-binding emissions targets”.⁷

In 2020, the UK will host COP26, the decision making body of the United Nations Framework Convention on Climate Change (UNFCCC). This is an unprecedented opportunity for the UK to positively shape discussions by ensuring health is at the heart of the negotiations. Furthermore, with updated nationally determined contributions (NDCs) due

to be submitted by 2020, it is important that the UK integrates health considerations throughout its proposals, across both mitigation and adaptation, in order to address the growing health risks in a coordinated fashion and maximise the health benefits of decarbonisation.

Distractions from these pressing challenges remain. The UK's departure from the European Union has continued to occupy the Government throughout 2019, including in the run-up to the December general election. Brexit poses both a potential threat to progress on climate policy, and an opportunity for the UK to embed even more ambitious climate and environmental protections than those embodied by EU legislation. However, this will not happen without concerted effort by the UK government and civil society.

This brief focusses on connections between climate change and health in the United Kingdom in 2019. It draws out some of the most relevant findings of the Lancet Countdown on Health and Climate Change 2019 report. This policy brief uses UK data to highlight specific threats and opportunities that climate change poses for the health of the UK population.

Key messages and recommendations

1

A strong policy framework is required in the UK, together with adequate funding for climate adaptation of the health and care system, as well as high-level leadership and clear lines of accountability in order to effectively address the health risks posed by climate change. The UK government should therefore appoint a designated ministerial lead to oversee a cross-government response to reducing the health risks posed by climate change, including heat, to ensure a holistic and coordinated approach.⁸

2

The UK Government should adopt a new Clean Air Act, with a legal requirement to require all local authorities to achieve and maintain annual mean PM_{2.5} levels below World Health Organization standards,⁹ and a strong regulatory framework to enforce this. This needs to be accompanied by significant increases in investment in public transport, cycling and walking infrastructure at a national level. In addition, all relevant new legislation contained in the Clean Air Act should consider the importance of reducing the energy intensity of the UK's transport and energy systems in addition to improving air quality.

3

Redirect existing UK tax concessions and subsidies for fossil fuels towards clean, renewable energy sources such as solar and wind power, and energy storage infrastructure.

Exposure of vulnerable populations to heatwaves

This summer, 2019, saw record temperatures across the UK.¹⁰ Hot weather and heatwaves are associated with excess mortality – deaths that would not have occurred in normal circumstances.² The elderly and those with living with chronic diseases are most vulnerable to the impacts, which include not only dehydration and heatstroke but also an increased risk of cardiovascular conditions, stroke and kidney disease.¹¹ Higher temperatures are also linked with increased air pollution, which can exacerbate respiratory conditions.¹² In 2018, there were four heatwaves in the UK, which resulted in 863 excess deaths.²

Heatwaves are becoming more frequent. Globally, in 2018, 220 million more heatwave exposures were observed compared to the baseline

from the early 2000s. The health impacts of this are likely to be significant.¹³ The number of heat-related deaths in the UK is expected to rise from 2,000 to approximately 7,000 each year by the 2050s.¹⁴ As shown in figure 1, vulnerability to extremes of heat continues to rise among elderly populations. The UK population is particularly vulnerable to heat due to an ageing population, increasing prevalence of chronic diseases, such as cardiovascular disease, diabetes, chronic kidney disease and respiratory disease, and the high proportion of the population living in urban areas where temperatures are often higher.¹⁴ Older people living in care homes are at significant risk, and there are currently no requirements to ensure the regulation of temperatures in hospitals and care homes during heatwaves.¹⁴

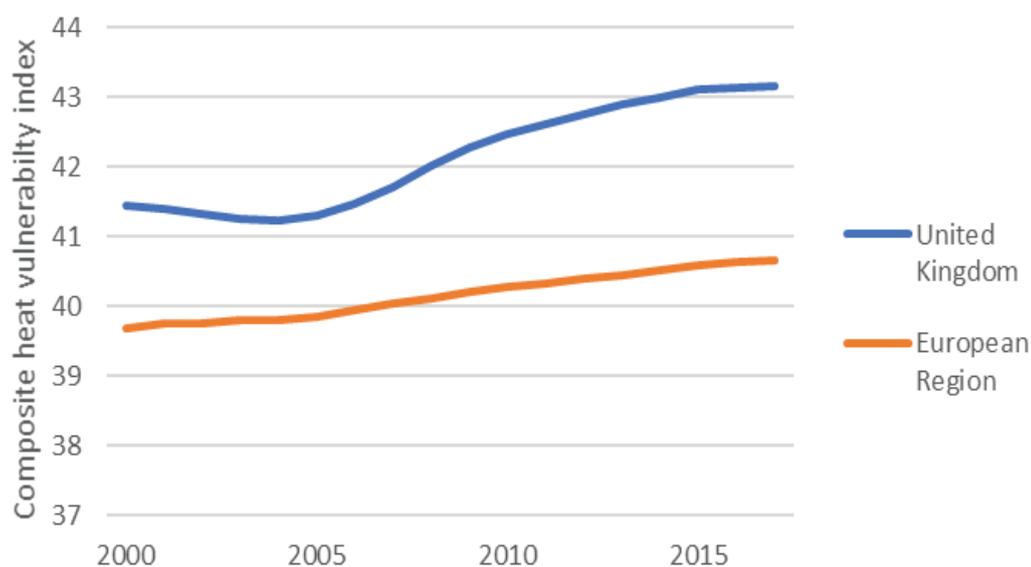


Figure 1: Changing vulnerability to heat in the UK and Europe

Although Public Health England’s heatwave plan has supported responses by local government and health and care organisations, longer-term planning in relation to building standards and infrastructure is inadequate in many key sectors. Important policy gaps identified by the 2018 Environmental Audit Committee report ‘Heatwaves: Adapting to Climate Change’ include the fact that the NHS Emergency Preparedness, Resilience and Response (EPRR) approach does not include overheating risk; that this is not among the areas inspected by the Care Quality Commission; that care homes are not required to comply with

EPRR standards; and that overheating risk is not adequately addressed in building regulations.¹⁴

A lack of awareness among the UK population of the extent of the consequences of heat exposure, and how best to protect oneself during a heatwave contributes to the extent of the damage by heatwaves.^{14,15} The UK needs to urgently educate and prepare the population for health impacts of climate change, including increased exposure to heat.

Exposure to air pollution

Many types of air pollutants cause environmental and health problems.¹⁶ The two most strongly linked to adverse health outcomes are nitrogen dioxide, causing asthma exacerbations, and PM_{2.5} (particulate matter ≤2.5 micrometres in diameter), which is a complex mixture of chemicals. PM_{2.5} negatively affects health by causing respiratory conditions such as asthma, chronic obstructive pulmonary disease and lung cancer, cardiovascular diseases including heart attacks and angina, stroke, dementia and type 2 diabetes. It has also been linked to pregnancy complications such as low birth weight, miscarriage and stillbirth.¹⁷ Air pollution, particularly PM_{2.5}, also causes premature mortality; the Committee on the Medical Effects of Air Pollutants estimates 36,000 deaths per year are due to PM_{2.5} and NO₂.¹⁷ In 2016, the Lancet Countdown attributed 3150 premature deaths due to air pollutants from coal. Among all energy sources for electricity production, coal-fired energy generation contributes most (50%) to ambient

PM_{2.5} air pollution (and consequently to adverse impacts on health) and to carbon dioxide emissions.¹³

In UK urban areas, emissions from road vehicles are an important source of PM_{2.5}. Active travel, such as walking and cycling, produces less air pollution as well as promoting health through increased physical activity. Increasing public expenditure on infrastructure has been shown to lead to increased uptake of these modes of transport and to be cost-effective.^{18,19} Industry and commercial emissions, as well as domestic emissions e.g. wood-burning stoves, also contribute significantly to PM_{2.5} levels.²⁰

As the graph below indicates, agriculture, households and land-based transport are the most significant contributors to premature mortality from air pollution, specifically PM_{2.5}, in the UK.

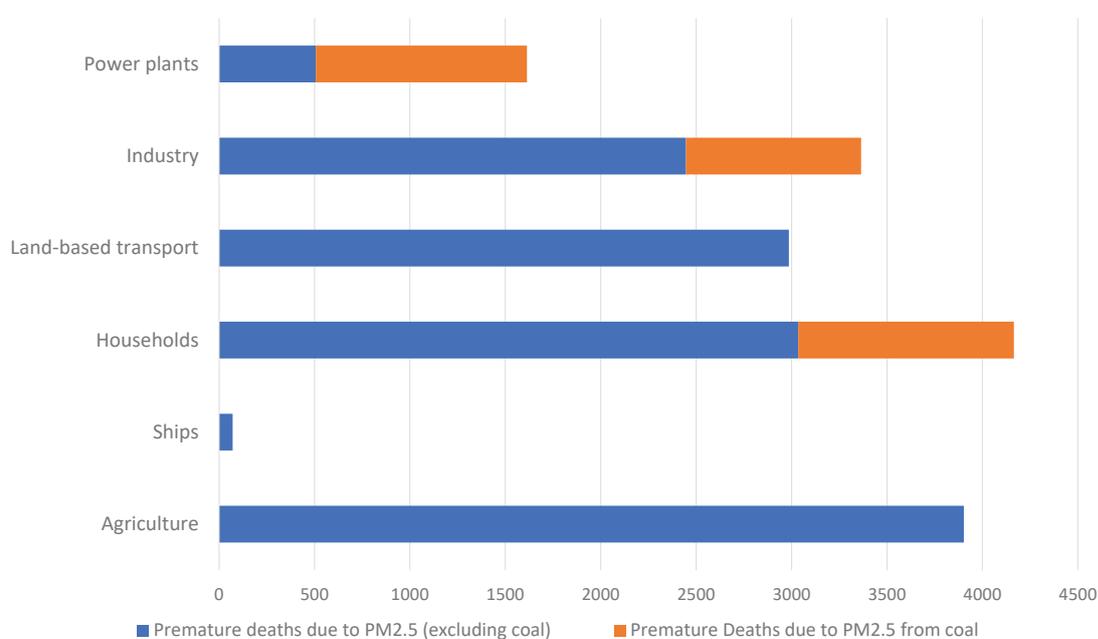


Figure 2: Premature deaths in the UK due to PM_{2.5} air pollution by sector[†]

A new Clean Air Act for the UK, as has recently been proposed by UK health bodies and MPs,²¹ would offer an opportunity to protect the

health of the UK population from the negative impacts of air pollution and to reduce the energy intensity of the UK transport system.

[†]In addition to the sectors shown here, other sources of ambient air pollution include soil, dust, barbecue smoke, fireworks, cremation, and cigarette smoking.

Carbon intensity of the energy supply for electricity generation

Globally, the carbon intensity of the total primary energy supply has remained static since 1990.¹³ In the UK, coal use for energy generation has steadily decreased since 1970; both the actual use and the share of energy generated from coal have decreased.²² In recent years, predominantly since 2010, the share of energy generated from renew-

able sources has significantly increased (see Figure 3). In 2017 the UK Government committed to phase out the use of unabated coal by 2025,²³ taking the leadership which is much needed internationally to phase coal out of the global energy system, since this is critical to meeting the commitments of the Paris Agreement.

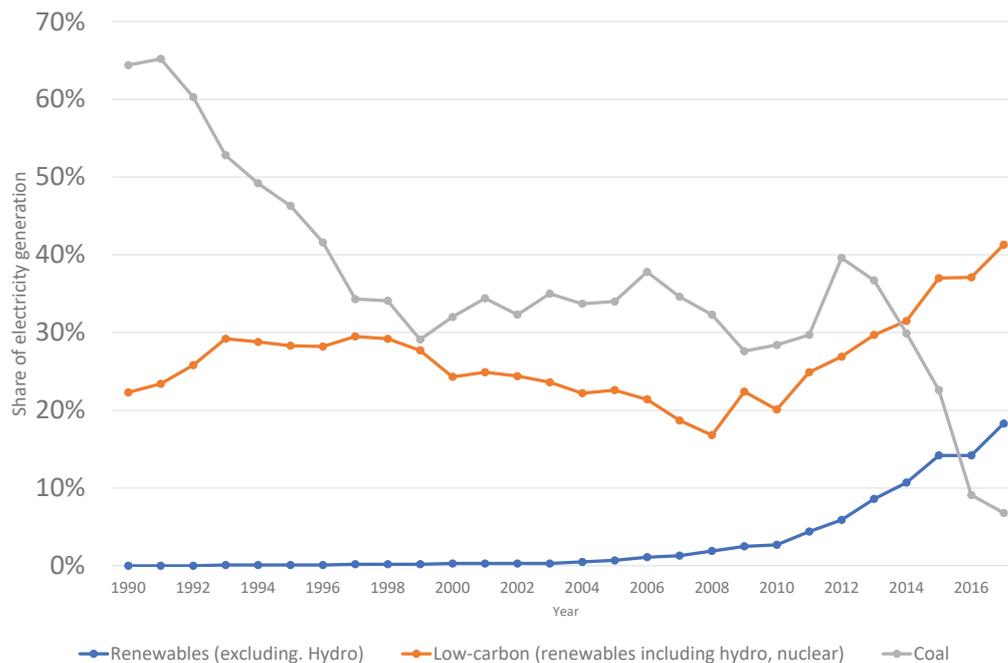


Figure 3: Proportions of electricity generation by source

However, there has also been a shift from coal towards natural gas for electricity generation in the UK; in 2016, the Office of National Statistics reported that gas generates the largest amount of electricity, and in 2018 demand for gas was 0.9% higher than in 2017.^{24,25} Natural gas exploration causes environmental degradation, and although lower-carbon than coal, remains a fossil fuel and significantly higher-carbon than renewable sources.

Coal and natural gas still benefit from fossil fuel subsidies in the UK. Although the UK government does not directly subsidise fossil fuel consumption, it subsidises oil and gas exploration.²⁶ Additionally, the UK government has frozen fuel duty on petrol and diesel since 2011-12 despite mounting evidence of their health and environmental costs, which fall on taxpayers rather than fossil fuel companies.²⁷

Therefore, while a move away from coal is welcome, the UK government needs to rapidly ensure that the energy system transitions entirely towards low carbon sources. This will support the government's commitment to a net zero carbon economy by 2050.

Ending high-carbon energy generation requires massively scaling up wind and solar power coupled with improvements in energy storage, the grid and transfer of energy produced in neighbouring countries.²⁸ Wind power is one source of renewable source of energy with particularly significant potential for future energy production in the UK. However, the National Policy Planning Framework, introduced in 2015, has substantially undermined the development and expansion of onshore wind as a source of energy in the UK.²² These restrictions should be relaxed if the UK is to be able to create a net zero economy.

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Organisations and acknowledgements

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THE ROYAL COLLEGE OF EMERGENCY MEDICINE

The Royal College of Emergency Medicine is the single authoritative body for Emergency Medicine in the UK. Emergency Medicine is the medical specialty which provides doctors and consultants to A&E departments in the NHS in the UK and other healthcare systems across the world. The Royal College works to ensure high-quality care by setting and monitoring standards of care, and providing expert guidance and advice on policy to relevant bodies on matters relating to Emergency Medicine.

ROYAL COLLEGE OF GENERAL PRACTITIONERS

The Royal College of General Practitioners is a professional membership body for GPs with 53,000 members in the UK and across the world. It is the largest medical royal college. Its purpose is to encourage, foster and maintain the highest possible standards in general medical practice. GPs are the only doctors in healthcare who care for the 'whole person', the only doctors who have the

opportunity and the privilege to build up lifelong relationships with patients, and the only doctors who can spread the urgent need for better planetary health to all patients through the comprehensive network of NHS general practices. The RCGP has a Green Impact for Health Toolkit to help GPs improve their sustainability and environmental impact www.greenimpact.org.uk/giforhealth and is a founder member of the UK Health Alliance for Climate Change. The RCGP's climate emergency group has a remit to look both at internal RCGP business and the sustainability of the wider health system.

THE LANCET COUNTDOWN

The Lancet Countdown: Tracking Progress on Health and Climate Change is an international, multi-disciplinary collaboration that exists to monitor the links between public health and climate change. It brings together 35 academic institutions and UN agencies from every continent, drawing on the expertise of climate scientists, engineers, economists, political scientists, public health professionals, and doctors. Each year, the Lancet Countdown publishes an annual assessment of the state of climate change and human health, seeking to provide decision-makers with access to high-quality evidence-based policy guidance. For the full 2019 assessment, visit www.lancetcountdown.org/2019-report.